

# Common maize weevil in grain storage

*Sitophilus zeamais* Common maize weevil, Greater grain weevil, Musunse in Tonga language



Small reddish brown weevil adult with long snout boring into grain (Canadian Grain Commission)



Wings of adult weevil with 4 yellowish spots (Georg Goergen IITA Insect Museum)



Feeding holes on maize cob caused by weevil (Frank Peairs, Colorado State University, Bugwood.org)

Prevention	Monitoring	Direct Control	Direct Control	Restrictions
<ul style="list-style-type: none"> <li>Use varieties with some resistance of the stored grains. e. g Kam 601 and 605, MRI 624, Pan 6227, 6777, SC 637, 719, ZMS 737, 510, DKC 8033, 8073 (Are found at most agro input suppliers)</li> <li>Shell maize cobs from husks before storage (this delays damage). Do not store grains that look damaged as they may contain weevils.</li> <li>Clean all storage bins, hats, bags from old grain rests and grain powders before re-filling</li> <li>Preventively put botanical pesticide of pounded neem seeds (Neem cake) in layers over grains (refer to green direct control column)</li> <li>Preventively use storage insecticides if you have experienced weevil infestation in the past (Refer to yellow direct control column)</li> <li>Use mud-clay or cement plastered baskets for storage, or mud-clay or cement - walled storage bins (Firrumbu). This does not totally prevent weevils because many are carried in with grains from the field (for this consider direct control). But it increases the efficacy of above preventive measures</li> <li>Use metal silos because weevils suffocate as there is not enough air. Only fill very dry grains into such silos as they heat up in the sun, and humidity condensates when cooling down which can destroy the grains.</li> </ul>	<ul style="list-style-type: none"> <li>Visually inspect grains monthly. Mainly look for the adult weevils, and for damaged grains with exit holes and feeding powder from grains.</li> <li>Use sticky sheets within the storage structures to capture weevils</li> <li>Once adult weevils or weevil damage is seen, direct control measures should be considered immediately.</li> </ul>	<ul style="list-style-type: none"> <li>Neem pesticide: Admix pounded neem seed powder into grain storage at 20 g / kg maize grains.;Alternatively, take maize grains out in shade, finely spray them with neem oil or neem leaf extract, wait for grains to dry well and then put them back into storage facility.; If neem trees do not naturally grow in your area, ask your local agro-input suppliers to organise such products.</li> <li>Mix pulverised Moringa seeds with stored maize grains</li> <li>All above applications can be done every 1 to 2 months</li> </ul>	<ul style="list-style-type: none"> <li>When using a pesticide, always wear protective clothing and follow the instructions on the product label, such as dosage, timing of application, and pre-harvest interval.</li> <li>There are a number of fumigation chemicals on the market but they are usually extremely toxic during application, are flammable gases; and can only be applied by an experienced, officially trained and registered fumigator. Many of these products and applications are forbidden in Zambia</li> <li>Always consult recent list of registered pesticides (ZEMA).</li> <li>Use storage pesticide: Chirindamatura (a.i. permethrin 16g/kg and pirimiphos-methyl 3g/kg). Check right concentrations of a.i. on product labels, because there are products with too low contents which do not work. Use usually before you start to store the grains; Mix 25 gms with 50 kg grains</li> <li>Alternatively, use storage pesticide Shumba (a.i. deltamethrin 0.13% and fenitrothion 1%), usually 25gms/50Kg. Should be mixed with the grains.</li> </ul>	<ul style="list-style-type: none"> <li>WHO toxicity class II, (moderately hazardous); pre-use interval 3 months, Max one spray per grain store. Do not apply when under medical advice. If used as fumigant, then this can only be done by a registered fumigator person.</li> <li>WHO class II, (moderately hazardous); pre-use interval 3 months, Max spray once per grain store</li> </ul>

## Zambia

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